

REMARKS

In the Office Action, dated July 14, 2004, the Examiner states that Claims 1-8 are pending, Claims 1-6 are rejected and Claims 7 and 8 are allowed. By the present Amendment, Applicant amends the claims.

In the Office Action, Claims 1-6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Liang (US 6,245,148) in view of Raphael (US 5,383,574) and Orlando (US 5,502,685). The Applicant requests that the Examiner reconsider these rejections in view of the amendments made to the claims.

Claim 1 has been amended to clarify the feature that the sources of supply are provided for supplying the same solution. The device comprises middle tanks for the respective sources of supply, and the flow path is divided into a plurality of primary lines between the sources of supply and the middle tanks through which the respective sources of supply are connected to the middle tanks, different from each other.

In contrast, Liang discloses a single source of supply and a single middle tank. Orlando discloses two sources of supply (10, 24) and two middle tanks (14, 16). However, the sources for Orlando are for different solutions, one of which is a water tank 10, and the other is a chemical tank 24. Further, both the water tank 10 and the chemical tank 24 are connected to the same mixing tanks 14 and 16. In other words, each of the mixing tanks 14 and 16 are provided to mix the water and the chemical therein, and each tank 10 and 24 is connected to both of the mixing tanks 14 and 16.

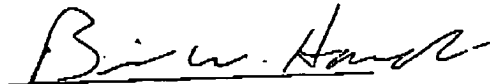
It is apparent that none of the cited references disclose, teach or suggest the claimed feature of the present application that multiple sources of supply are provided to supply a common solution to respective middle tanks. In view of at least this feature, the Applicant considers that the rejections to the claims have been overcome.

In light of the foregoing response, all the outstanding objections and rejections are considered overcome. Applicant respectfully submits that this

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application should now be in condition for allowance and respectfully requests favorable consideration.

Respectfully submitted,



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Date

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Takeshi Sekiguchi et al )  
SERIAL NO: 10/021,393 ) Group Art Unit: 1734  
FILED: October 30, 2001 ) Examiner: George R. Koch  
TITLE: DEVICE FOR PROVIDING A PRESSURIZED SOLUTION TO AN  
APPLYING DEVICE

AMENDED CLAIMS

1. (currently amended) A device for providing a solution for a color filler, which leads the solution from any one of two or more sources of supply to an applying device via a predetermined flow path, the sources of supply being provided for supplying the same solution, the device comprising:

a middle tank for each of the middle tanks for the respective sources of supply, each middle tank being provided on the way of the flow path connecting each of the sources of supply and the applying device, and the flow path being divided into a plurality of primary lines between the sources and the middle tanks through which the respective sources of supply are connected to the middle tanks different from each other;

a sensor which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with a detection result; and

a controlling device which discriminates whether the amount of the solution stored in each middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in any one of the middle tank tanks is less than the lower limit value.

2. (original) The device for providing a solution according to claim 1, wherein the applying device is configured so as to discharge the solution by a predetermined amount and the lower limit value is set to be not less than a discharged amount from

the applying device for one time.

3. (original) The device for providing a solution according to claim 2, wherein the lower limit value is set in the range of 100 to 150% of the discharged amount for one time.

4. (currently amended) The device for providing a solution according to claim 1, wherein the maximum amount of the solution which is stored in the each middle tank is higher than the lower limit value by predetermined degree of margin.

5. (currently amended) The device for providing a solution according to claim 1, wherein the sensor outputs different signals depending on whether a position of a liquid level of the solution which is stored in the each middle tank is not less than a predetermined position or not.

6. (original) The device for providing a solution according to claim 1, wherein the applying device is configured so as to discharge the solution which is provided from one of the sources of supply by a predetermined amount by repeatedly opening an open-close valve which closes the flow path in increments of a predetermined time.

7. (previously presented) A device for providing a solution which leads a solution from any one of sources of supply to an applying device via a predetermined flow path, comprising:

- a middle tank which is provided on the way of the flow path connecting each of the sources of supply and the applying device for each of the sources of supply;
- a sensor which detects whether an amount of a solution stored in each middle tank is not less than a predetermined lower limit value or not and outputs a signal in association with a detection result; and

- a controlling device which discriminates whether the amount of the solution stored in each middle tank is not less than the lower limit value or not on the basis of the output signal from the sensor and performs the predetermined processing in association with switching of the sources of supply when it is decided that the amount of the solution stored in the middle tank is less than the lower limit value,

- wherein the applying device is provided with a pump repeating a process to take in the solution by a predetermined amount and a process to discharge the solution which is taken in;

- wherein an ante-pump tank for storing the solution to be provided to the pump is provided between the middle tank and the pump as well as downstream of a position where flow paths from each middle tank are converged;

wherein the ante-pump tank is provided with a sensor for a pump which detects whether the amount of the solution which is stored in the ante-pump tank is not less than a predetermined lower limit value or not and outputs a signal in association with detection result; and

wherein the controlling device discriminates whether the amount of the solution which is stored in the ante-pump tank is not less than the lower limit value or not and if the controlling device decides that the amount of the solution which is stored in the ante-pump tank is less than the lower limit value, predetermined processing in association with filling of the solution from the middle tank to the ante-pump tank is carried out.

8. (original) The device for providing a solution according to claim 7, wherein the controlling device prohibits the filling of the solution from the middle tank to the ante-pump tank during the pump is operating.

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